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PRELIMINARY AMENDMENT

Applicant(s):	Kazuhiko Yamauchi et al.
Title:	OPTICAL DISC STORING BOTH VIDEO TITLES PROVIDED WITH AV FUNCTIONS ...
Attorney's Docket No.:	NAK1-AZ37a

"EXPRESS MAIL" MAILING

LABEL NO. EL 852659529 US

DATE OF DEPOSIT: August 20, 2001

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DRAWINGS – THIRTY-ONE (31) SHEETS

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NAK1-AZ37b

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Kazuhiko Yamauchi et al.	Group Art Unit:
Serial No.:	
Filed:	August 20, 2001
For: OPTICAL DISC STORING BOTH VIDEO TITLES PROVIDED WITH AV FUNCTIONS ...	Irvine, California 92614

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Prior to an examination on the merits of the above-identified divisional application, please enter the following amendments.

IN THE SPECIFICATION:

Please add the following paragraph before the paragraph beginning on page 1, line 8:

--RELATED APPLICATIONS

This is a divisional application of U.S. Serial No. 09/102,697, filed on June 22, 1998, which is a continuation of U.S. Serial No. 08/837,271 filed on April 11, 1997, and issued as U.S. Patent No. 5,771,334 on June 23, 1998.—

Please replace the paragraph beginning on page 8, line 1, with the following rewritten paragraph:

--In view of the difficulties when a plurality of titles are to be stored on a single optical disc, it has been suggested that AV functions should not be provided for any of the titles on a multi-title disc. However, in such a case, when viewing a same kind of title as was available for conventional video CD or laser disc, the user will not be able to make use of the AV functions to which he/she has become accustomed, thereby preventing jumps to a specified chapter number or reproduction time. This will not meet the user expectations for such reproduction and can potentially lead to user dissatisfaction with this kind of equipment.—

Please replace the paragraph beginning on page 16, line 1, with the following rewritten paragraph:

--The shape of these pits is shown in Fig. 2D. As shown in Fig. 2D, the length of the pits varies between 0.4 μm and 2.13 μm, with the pits being aligned in a spiral with radial intervals of 0.74 μm between them to form one spiral track.—

Please replace the paragraph beginning on page 17, line 16, with the following rewritten paragraph:

--Fig. 3A shows the arrangement when the spiral track is formed leading from the inner periphery to the outer periphery of the information layer 109, with a very large number of physical sectors being formed on this spiral track. In the present embodiments, a physical sector is a curved area on the spiral track, and is the smallest unit of data which can be reliably retrieved.--

Please replace the paragraph beginning on page 19, line 3, with the following rewritten paragraph:

--The volume area is an area for storing many kinds of data, as well as for managing the physical sectors to which the volume area belongs as logical blocks. These logical blocks are identified by firmware using serial numbers which are assigned to consecutive physical sectors, with the first physical sector in the data recording area being assigned the number zero. The enlarged portion "b301" of Fig. 4A shows a group of logical blocks in the volume area. Here, the figures, #m, #m+1, #m+2 and #m+3 which are appended to the logical blocks in this circled area are the logical block numbers.—

Please replace the paragraph beginning on page 47, line 27, with the following rewritten paragraph:

--The title playback type includes a plurality of flags for showing the format of the various titles. The reference numerals 9141, 9142, and 9143 shown in the figures indicate the "sequential single PGC identification flag", the "no branch flag" and the "no branch between titles" flag, with these flags being set at "On" or "Off" to indicate the format of each title.—

Please replace the paragraph beginning on page 52, line 25, with the following rewritten paragraph:

--Fig. 17 is a block diagram showing the construction of the DVD player used in the present embodiment. The DVD player includes a drive mechanism 16, an optical pickup, a mechanism control unit 83, a signal processing unit 84, an AV decoding unit 85, a remote control receiving unit 92, and a system control unit 93. AV decoding unit 85 comprises a signal separating unit 86, a

video decoder 87, a sub-picture decoder 88, audio decoder 89, a state display unit 209, and a picture mixing unit 90.—

Please replace the paragraph beginning on page 54, line 3, with the following rewritten paragraph:

--The drive mechanism 16 comprises a platter on which an optical disc is placed and spindle motor 81 for rotating the inserted optical disc. The platter can be moved in and out of the DVD player by means of an eject mechanism which is not shown in the drawing. The user places an optical disc on the platter when it has been projected forward outside the DVD player. After this, the platter is moved back into the DVD player so as to load the optical disc.---

Please replace the paragraph beginning on page 54, line 12, with the following rewritten paragraph:

--The mechanism control unit 83 controls the spindle motor 81 for rotating the disc and the mechanism made of the optical pickup for reading the signal from the disc and actuator 82 of the optical pickup. Specifically, the mechanism control unit 83 adjusts the motor speed according to a track position specified by system control unit 93. At the same time, it moves the optical pickup by controlling the actuator 82 of the pickup and, having detected a correct track by servo control, waits for a desired physical sector before reading signals continuously starting from a desired position.—

Please replace the paragraph beginning on page 81, line 23, with the following rewritten paragraph:

--The optical disc of the present invention can be used for storing both sequential video titles and interactive video titles, and so allows the distribution and retailing of optical titles which are on a multi-title disc.—

IN THE CLAIMS:

Please cancel Claims 1-26 without prejudice.

Please add the following newly-drafted Claims 27 to 37.

27. (New) An optical disc comprising:

a plurality of title groups of audio and video information and control information which permit a reproduction unit to vary the sequence of reproduction of the video and audio information;

at least one of the title groups of audio and video information include route information which provide a fixed order of reproduction;

at least another of the title groups of audio and video information include branch information which can enable a variable order of reproduction; and

reproduction information for indicating the status of each of the title groups including one of a fixed order of reproduction and a variable order of reproduction whereby the reproduction unit can immediately determine from the reproduction information whether the sequence of reproduction for a title group can be varied without searching through the entire audio and video information of the title group.

28. (New) The optical disc of Claim 27, wherein the fixed order of reproduction can be determined by a combination of flag values including a first flag that indicates the title group can be reproduced from a single piece of route information and a second flag that indicates that route information does not include branch information.

29. (New) A disc reproduction apparatus and optical disc system, the optical disc comprising:

a title area with a plurality of video titles and a manager area, each video title includes route information and a plurality of pieces of video information retrieved according to the route information, the manager area includes an address management information area for storing a plurality of pieces of address management information, each of which includes an address of one of the plurality of video titles; and

reproduction information for indicating a status of each of the video titles relative to enabling a variable sequence of reproduction by the disc reproduction apparatus; and

the disc reproduction apparatus comprising:

an optical disc pickup for optically reading data from the optical disc;

a drive mechanism for driving the optical pickup;

first controlling means for controlling the drive mechanism to have the optical pickup read data from the manager area;

a manager buffer for storing the data read by the first controlling means;

receiving means for receiving a video title selected by an operator to be reproduced;

calculating means for calculating an address of the video title selected by the operator by referring to the manager buffer;

second controlling means for controlling the drive mechanism to move the optical pickup and to have the video title read from a position specified by the address calculated by the calculating means;

judging means for judging whether a variable sequence of reproduction can be executed in the video title read by the second controlling means by referring to the reproduction information corresponding to the video title; and

a user executing means for executing a user selected variable reproduction sequence of the pieces of video information only when the judging means judges that such a user selection can be used in the video title.

30. (New) An optical disc comprising:

a plurality of pieces of information representing a plurality of titles;

route information defining a reproduction route by specifying at least one reproductive order of the plurality of pieces of image information; and

disc reproduction information including branch status information indicating for each title whether a branch during its reproduction is possible.

31. (New) The optical disc of Claim 30, wherein the plurality of pieces of information include:

command regions storing commands;

the commands stored in the command regions form part of the route information;

the commands include a command that shows at least one piece of image information that is allowed to branch during reproduction; and

the disc reproduction information indicates that a reproduction route defined by the route information is a non-branch type if no commands that indicate pieces of image information that are allowed to branch are stored in the command regions.

32. (New) The optical disc of Claim 30, including:

a control region for storing linking information and commands separately to the plurality of pieces of image information;

the linking information being part of the route information and showing a piece of image information that is reproduced after each piece of image information;

the commands being part of the route information controlling reproduction of the plurality of pieces of image information;

including pieces of image information that are allowed to branch irrespective of pieces of image information shown by the linking information; and

the disc reproduction information indicates that a reproduction route defined by the route information is a non-branch type if no commands that indicate pieces of image information that are allowed to branch are stored in the command regions.

33. (New) The optical disc of Claim 30, wherein each piece of information includes:

a series of video objects;

the route information includes:

at least one piece of program chain (PGC) information that shows a reproduction order for certain video objects;

position information showing positions on the optical disc of the video objects shown by each piece of PGC information;

PGC linking information showing how pieces of PGC information are linked together;

a command table showing three pieces of PGC information that branch during reproduction to other pieces of PGC information that are different from the PGC information provided in the PGC linking information; and

the disc reproduction information indicates whether a reproduction route defined by the route information is a first type that is expressed by a single piece of PGC information or a second type that is expressed by a plurality of pieces of PGC information.

34. (New) The optical disc of Claim 30, wherein the disc reproduction information is formatted for storage in a disc reproduction device when the optical disc is initially loaded into the disc reproduction device and includes:

menu information for displaying to a user the plurality of titles in a menu format; and

indicator information for indicating for each title whether a branch during reproduction is possible.

35. (New) A reproduction apparatus for reproducing the optical disc of Claim 30, comprising:

reading means for reading a piece of image information, route information, and disc reproduction information from the optical disc and reproducing the piece of image information;

a controller for controlling the reading means; and

a memory for storing available function information showing types of reproduction routes for which execution of certain functions is allowed, based on performance of the reproduction apparatus, wherein the controller:

has the reading means read the image information, the route information, and the disc reproduction information from the optical disc;

has the reading means read and reproduce the image information in accordance with the read route information; and

judges, when there is a request to execute one of the certain functions, whether execution of the requested function is allowed, based on the read disc reproduction information and the available function information in the memory.

36. (New) The reproduction apparatus of Claim 35 wherein the certain functions include:

a search reproduction function that has reproduction commenced from a specified position within a piece of image information.

37. (New) The reproduction apparatus of Claim 35 further comprising:

a feedback means that displays an index number of image information during reproduction of the image information, wherein the certain functions include a feedback function that displays the index number.

REMARKS

The amendments to the specification to correct minor errors. Newly drafted Claims 27-37 provide an alternative definition of the invention from that of the parent application Serial No. 09/102,697 and are within the scope of the original invention.

This is a divisional application of U.S. Serial No. 09/102,697. It is requested that the references cited in the prosecution of the parent application be considered in the prosecution of this divisional application, and accordingly a form PTO 1449 listing these references is attached. The relevance of those references was set forth in the prosecution of U.S. Serial No. 09/102,697.

With regard to the *Yamauchi et al.* references, U.S. Patent No. 5,613,109 and U.S. Patent No. 5,771,334, basically an optical disk is disclosed in which information for managing reproduction routes, including branching of information recorded on the optical disk is recorded. Likewise, the *Roth* U.S. Patent No. 5,546,365 also teaches recording managing reproduction routes, including branching information on the optical disc. Neither of these references, however, discloses information on a type of route, for example, branch status information indicating whether a branch during a certain type of reproduction is possible.

If the Examiner believes that a telephone interview will help further the prosecution of this case, he is respectfully requested to contact the undersigned attorney at the listed telephone number.

Very truly yours,

PRICE AND GESS

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2100 S.E. Main St., Ste. 250
Irvine, CA 92614
949/261-8433

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

A paragraph has been added before the paragraph beginning on page 1, line 8:

--RELATED APPLICATIONS

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The paragraph beginning on page 52, line 25, has been amended as follows:

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receiving unit 92, and a system control unit 93. AV decoding unit 85 comprises a signal separating unit 86, a video decoder 87, a sub-picture decoder 88, audio decoder 89, a state display unit 209, and a picture mixing unit 90.—

The paragraph beginning on page 54, line 3, has been amended as follows:

--The drive mechanism 16 [is] comprises a platter on which an optical disc is placed and spindle motor 81 for rotating the inserted optical disc. The platter can be moved in and out of the DVD player by means of an eject mechanism which is not shown in the drawing. The user places an optical disc on the platter when it has been projected forward outside the DVD player. After this, the platter is moved back into the DVD player so as to load the optical disc.---

The paragraph beginning on page 54, line 12, has been amended as follows:

--The mechanism control unit 83 controls the spindle motor 81 for rotating the disc and the mechanism made of the optical pickup for reading the signal from the disc and actuator 82 of the optical pickup. Specifically, the mechanism control unit 83 adjusts the motor speed according to a track position specified by system control unit 93. At the same time, it moves the optical pickup by controlling the actuator 82 of the pickup and, having detected a correct track by servo control, waits for a desired physical sector before reading signals continuously starting from a desired position.—

The paragraph beginning on page 81, line 23, has been amended as follows:

--The optical disc of the present invention can be used for storing both sequential video titles and interactive video titles, and so allows the distribution and retailing of optical titles which are on a multi-title disc.—

New Claims 27-37 have been added.